

PREHISTORIC BIGHORN SHEEP IN THE NORTHERN SIERRA NEVADA, CALIFORNIA

Peter D. Schulz¹ and Dwight D. Simons¹

ABSTRACT.— Data from pictograph and archaeological sites in northeastern California are used to verify the postulated former existence of small resident populations of bighorn sheep (*Ovis canadensis*) in this region. The reason for the disappearance of bighorns from this area remains unclear, with climatic change, Euro-American settlement, or hunting pressure existing as possibilities.

The known historic range of bighorn (*Ovis canadensis*) in California has been reported by Jones (1950). In the 160 miles between Observation Peak in east central Lassen County and the southeastern portion of Alpine County to the south, there is no record of bighorn sheep except for an isolated sighting east of Donner Pass, Nevada County (Wistar, 1914:113). Some authors (Cowan, 1940; Hall and Kelson, 1959; Buechner, 1960) have posited the entire Sierra Nevada as pristine bighorn range, but no evidence exists in the zoological literature to support this suggestion. Archaeological research in this area during the last decade and a half sheds considerable light on the matter. This note will present a brief review of relevant findings and a description of new material analyzed by the authors.

Three archaeological sites in northeastern California contain rock carvings of bighorns (Heizer and Baumhoff, 1962; Payen, 1966). These are: site 4-Las-38 in Ball's Canyon, 8 miles north of Standish, Lassen County; site 4-Sie-1, ¼ mile southeast of Hawley Lake, Sierra County; and site 4-Pla-26, 11 miles south of Old Highway 40 at Soda Springs, Placer County. Heizer and Baumhoff (1962) and Grant *et al.* (1968) discuss the relevance of pictograph distributions to the prehistoric range of mountain sheep, particularly in Nevada and southeastern California. Their research suggests that these pictographs functioned in hunting rituals. The paucity of such sites in our area of concern, however, lends little aid to range determination.

Direct evidence of late prehistoric sheep populations exists in the faunal remains from five archaeological sites (Figure 1). Age estimations for all the sites are based on artifact typology and are considered reliable, since these are correlated with radiocarbon-dated deposits in neighboring areas of California and Nevada.

Bare Cave (4-Las-S228) is located in northeastern Lassen County at the southernmost end of Surprise Valley, 10.5 miles southeast of Eagleville. Although the fauna from this site has not yet undergone systematic analysis, the authors have identified remains of several individuals of *Ovis canadensis* represented by abundant cranial and postcranial elements. Stratigraphic records on the faunal remains appear to have been lost, and thus changes in sheep abun-

¹Department of Anthropology, University of California, Davis, Calif. 95616.

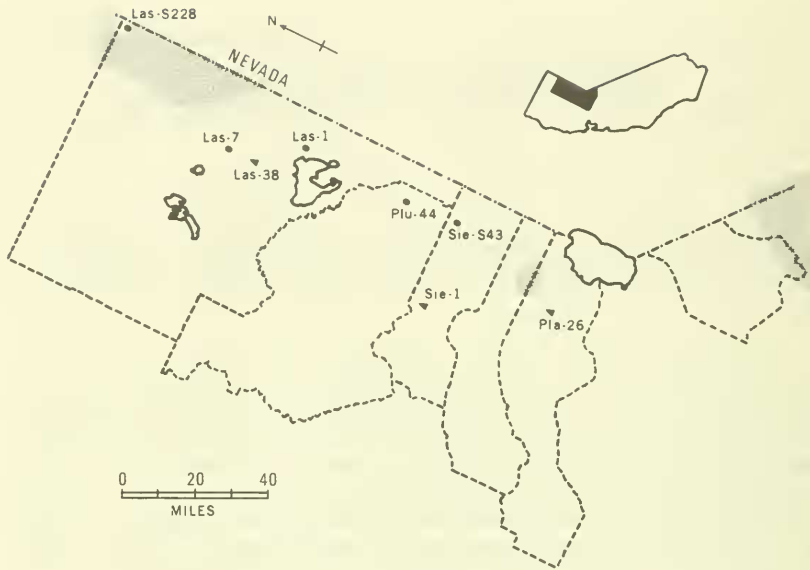


Fig. 1. Map of the counties of northeastern California showing archaeological sites with bighorn sheep remains (circles) and bighorn pictographs (triangles). Stippling indicates historic range (after Jones, 1950).

dance through time cannot be demonstrated. Brown (1964) dates the deposit between 2000 B.C. and A.D. 1200.

The Karlo site (4-Las-7) is approximately 20 miles northeast of Susanville, Lassen County, near the Karlo siding on the Southern Pacific line between Susanville and Alturas. Riddell (1960) describes numerous bone tools made from metapodials and scapulae of *Ovis canadensis*. Unmodified bones of this species were also present in the deposit. Sheep remains are more abundant in the upper levels of the site, but this correlates with other bone remains and cannot be used as evidence of faunal change. It is suggested that the site was occupied seasonally from ca. 2000 B.C. until the nineteenth century A.D.

Tommy Tucker Cave (4-Las-1) lies 4 miles southeast of Wendel, Lassen County, on the south slope of Hot Springs Peak. Riddell (1956) reports 11 bones assignable to *Ovis canadensis*. Remains from the deposit range in age from ca. A.D. 1000 to the historic period.

Chilcoat Rockshelter (4-Plu-44) is situated 7.5 miles north of Vinton, Plumas County. Bone preservation was extremely poor, and Payen and Boloyan (1961) report only a single specimen attributable to bighorn. The deposit is dated from A.D. 1400 to 1850.

The Loyalton Rockshelter (4-Sie-S43) is located on Elephant Head Peak, 2 miles northeast of Loyalton, Sierra County. Faunal remains were fairly abundant, although the deposit was less than

a foot deep. We recorded 7 adult calvaria definitely assignable to *Ovis canadensis* and 2 foetal crania assignable to *Ovis* and almost certainly associable with the bighorn remains. Postcranial elements were also abundant in the deposit but were so badly smashed for marrow extraction and tool use that few were identifiable. The presence of adults and fetuses indicates occupation of the area by a resident sheep population rather than by stray individuals. Wilson (1963) attributes the deposit to the period between ca. A. D. 1000 and the Euro-American immigration.

The presence of bighorn remains at these sites provides significant indication that the species was widely present in the northern Sierra Nevada of California during the late prehistoric period. The reason for the disappearance of the form over all of this range is unclear. At present, factors such as late climatic change in the area, withdrawal of sheep before immigrating Euro-Americans, or extinction of local populations by hunting are possibilities. Since most of the sites contain very few individuals and only three sheep pictographs have been recorded for the entire area (as opposed to more than 7,000 in Inyo County alone), it is fairly certain that bighorns were never as abundant in this region as they were farther south and east. Thomas (1972) notes that if local bighorn bands are hunted out, their area will be slowly or never repopulated. This results from the maintenance of similar home ranges by bighorn bands from generation to generation. This trait, coupled with low population density, would have facilitated extinction through any of the agencies mentioned above.

We wish to thank D. L. True and R. L. Rudd for criticizing the manuscript, and M. A. Baumhoff for discussions which stimulated our work in this area.

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